Safety Manual

Omni-ID UHF Tags

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Document Number **330556** (See Last Page for Revision Details)

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7 Manual Revision 25

1 Safety Information and Notes

1.1 Storage of this Manual

Keep this user manual safe and in the vicinity of the device. All persons required to work with the device should be advised on where this manual is stored.

1.2 Special Conditions for Safe Use

1.2.1 ATEX/IECEx

For –R variants the maximum RF power output from the tag reader to its antenna must not exceed the following:-

Tamb (°C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.25	0.66	1.5
50	0.18	0.59	1.5
60	0.12	0.53	1.5
70	0.06	0.47	1.5
80	N/A	0.40	1.5

For –F variants the maximum RF power output from the tag reader to its antenna must not exceed the following:-

Tamb (°C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.13	0.36	0.79
50	0.10	0.32	0.75
60	0.06	0.29	0.72
70	0.03	0.25	0.68
80	N/A	0.22	0.65

For –C variants the maximum RF power output from the tag reader to its antenna must not exceed the following:-

Tamb (°C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.19	0.50	1.10
50	0.14	0.45	1.05
60	0.09	0.40	1.00
70	0.04	0.35	0.95
80	N/A	0.31	0.90

Under the conditions listed in the certificate schedule where either note 1 or note 2 apply there may be a potential electrostatic charging hazard. When used in this manner the equipment is not to be mounted in high airflow dust laden atmosphere and should only be cleaned using a damp cloth

1.3 List of Notes

The notes supplied in this chapter provide information on the following.

- Danger! / Warning!
    - Possible hazard to life or health.
- Caution

- Possible damage to property.

- Important
  - Possible damage to enclosure, device or associated equipment.
- Information
  - Notes on the optimum use of the device

Warning!	**The RFID tags have been certified as a product range, as such different tag variants will have a different EPL and group. Additional to this the ambient temperature is dependent upon the tag variant and the RF power it is subjected to from a RFID reader base station. It is impractical to include all this information on the RFID tag label. Therefore the ATEX/IECEx certificate and this manual MUST be used to ascertain the permissible ambient temperatures and T-classes permissible and under which operating conditions the RFID tags can be safely installed and operated.**

Warning!	**The user MUST ensure that if the tags are read in a hazardous area the conducted power into the base station reader antenna, that is the power delivered from the base station transmitter via wires (conducted) to the antenna, is less than that in Table 1 and Table 2 for the relevant product code part (-Z). Any reader antenna gain may be used to provide the maximum EIRP allowed by the country of operation**

Warning!	**Only passive antennas may be used to assess the conducted RF power.**

Warning!	**When the tags are installed and read by a RFID reader (base station) inside a hazardous area, the base station used inside the hazardous area must also be certified. Additional to this the base station must be assessed to ensure its RF output power is limited as per Table 1 and Table 2 of this manual**

Warning!	**The RFID tags are made from an electrically insulating material and as such are a potential electrostatic hazard if they are installed in an area other than that specified by the Ex code of the tag. A tag with X=6 is always an electrostatic hazard and must only be used in a fixed installation and wiped with a damp cloth.**

Warning!	**If the tags are damaged in any way they must be removed from the hazardous area.**

Warning!	**The user MUST ensure that if the tags are read in a hazardous area the conducted power into the base station reader antenna is less than that in Table 1, Table 2 and Table 3 for the relevant product code. Conducted power is the RF power delivered from the base station transmitter via wires (conducted) to the antenna The antenna gain can be ignored for ATEX/IECEx compliance provided that the antenna gain is passive only, i.e. no electrical amplification between the transmitted output and antenna input or inside the antenna itself.**

Warning!	**The lower ambient temperature for all tag variations is -40°C.**

Warning!	**For (–E, encased) (–M, metal) and (-P, painted) tag variants ONLY, additional to the marked Ex code it is permissible for a tag variant to be given the following effective Ex code (note this code will not be marked on the tag) :** **II 1G Ex ia IIC Ga** **FOR FIXED INSTALLATIONS ONLY.**

	Under these conditions there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.

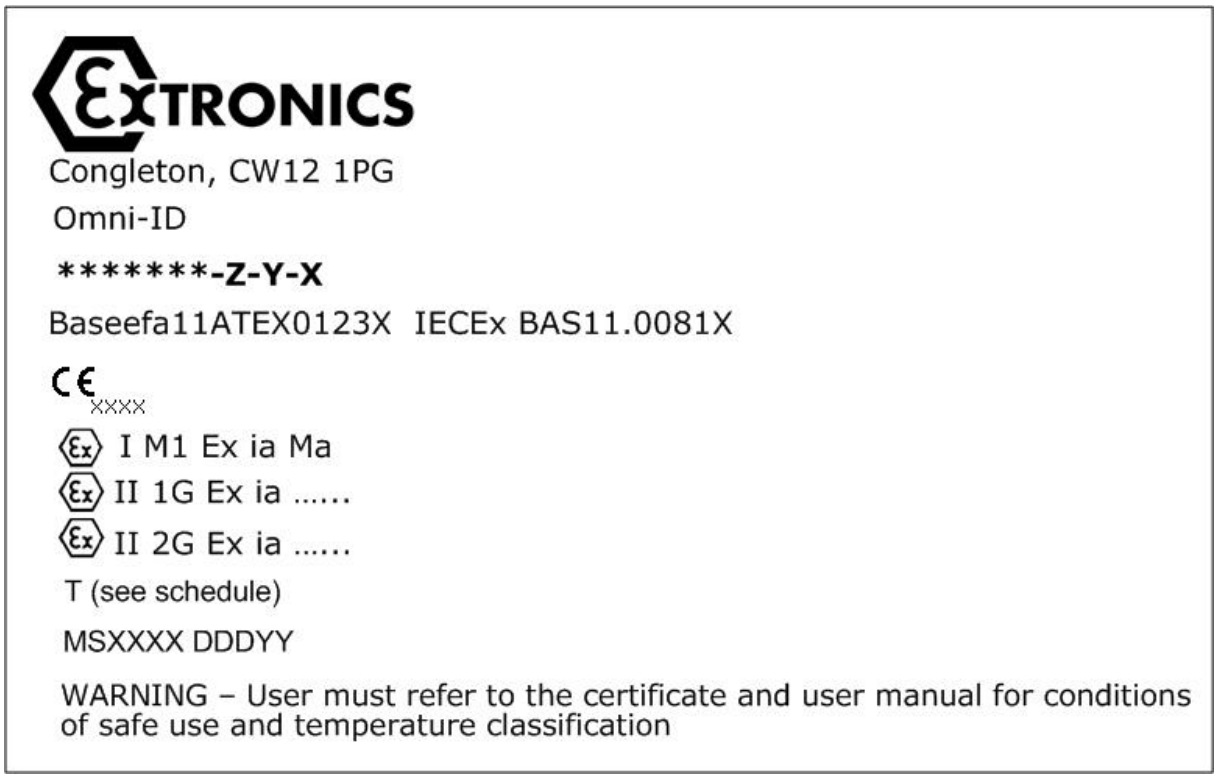
Warning!	**Tags marked with X=6 are permitted ONLY in fixed installations only. Under these conditions there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.**

Warning!	**Very small tags are unable to fit all of the required marking information on them. Any tag which do not contain the ATEX/IECEx certificate numberwill be provided with an external label.** **The user must ensure that the supplied label is attached adjacent to the tag.**

2 Safety Related Installation Information

2.1 Product Marking

The equipment will be marked with the information shown below. Actual layout may vary on each variant: -



Note: Actual Ex marking on the tag will vary dependant upon the tag variant. The Ex code marked on the tag must be observed except as specified in section 2.3.

******* denotes a production or marketing name for a tag variant

-Z Is used to obtain the ambient temperature and T-class for the tag variant
-Y denotes the type of enclosure used (-E for encased plastic, -L for a label tag and –M for a metal tag, -P for a painted tag)
-X denotes the size of the electrostatic charging hazard.

Warning!	**Very small tags are unable to fit all of the required marking information on them. Any tag which do not contain the ATEX/IECEx certificate numberwill be provided with an external label.** **The user must ensure that the supplied label is attached adjacent to the tag.**

2.2 Temperature Ratings

The T-class and temperature ratings of the tags will depend on 2 factors.

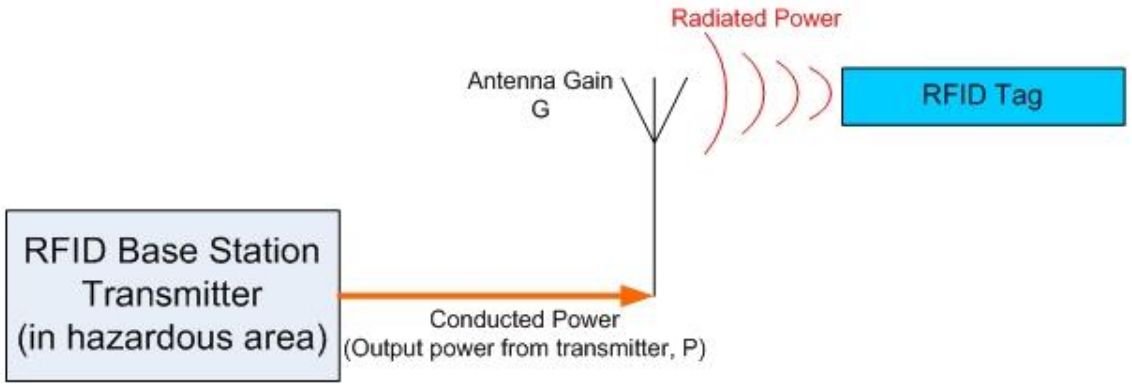
1. The amount of power conducted in to a reader antenna. That is the power delivered to a radiating antenna from a transmitter. This is NOT the EIRP which also takes into account the antenna gain.
2. The distance between the reader and the tag

The RFID tags contain no internal sources of heating, the only thermal rise will be when the tag is under the radiation of an external RFID reader (base station).

2.2.1 Base Station Reader Power Limitation for Temperature Classification

Warning!	**The user MUST ensure that if the tags are read in a hazardous area the conducted power into the base station reader antenna is less than that in Table 1 for Z=R, Table 2 for Z=F and Table 3 for Z=C. Conducted power is the RF power delivered from the base station transmitter via wires (conducted) to the antenna The antenna gain can be ignored for ATEX/IECEx compliance provided that the antenna gain is passive only, i.e. no electrical amplification between the transmitted output and antenna input or inside the antenna itself.**

Information	**The antenna gain must be taken in to account when assessing compliance with international radio frequency regulations.**



Actual radiated power = Conducted power in to the antenna, which is radiated in to free space

EIRP = Effective Isotropic Radiated Power and takes the antenna gain in to account. It is the product of the conducted RF power and antenna gain.

EIRP is the amount of power a theoretical isotropic antenna would emit to produce the same power density that the antenna with gain can produce in the direction of its main beam width.

For ATEX/IECEx compliance only the conducted power in to a passive antenna needs to be assessed

Tamb (°C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.25	0.66	1.5
50	0.18	0.59	1.5
60	0.12	0.53	1.5
70	0.06	0.47	1.5
80	N/A	0.40	1.5

Table 1 – -R variant maximum conducted RF power from RFID base station transmitter output to the reader antenna vs. upper ambient temperature

Tamb (^{o}C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.13	0.36	0.79
50	0.10	0.32	0.75
60	0.06	0.29	0.72
70	0.03	0.25	0.68
80	N/A	0.22	0.65

Table 2 – -F variant maximum conducted RF power from RFID base station transmitter output to the reader antenna vs. upper ambient temperature

Tamb (^{o}C)	T6 (W)	T5 & Group I (W)	T4 (W)
40	0.19	0.50	1.10
50	0.14	0.45	1.05
60	0.09	0.40	1.00
70	0.04	0.35	0.95
80	N/A	0.31	0.90

Table 3 – -C variant maximum conducted RF power from RFID base station transmitter output to the reader antenna vs. upper ambient temperature

Warning!	**The lower ambient temperature for all tag variations is -40^{o}C.**

2.3 EPL, Group, Category and Tag Marking

All Tags will be marked with a –Z-Y-X marking which corresponds to the Ex code marking shown in Table 4 and Table 5.

Warning!	**Only install the tags in the area permitted by the Ex code marked on the tag. It is only permissible to install the tags in an area permitted by Warning 1 if the product code is such that it allows the application of Warning 1 and the tag is installed in a fixed location.**

Information	**In this case a fixed installation is defined as an installation where the tag, or the asset the tag is attached to does not move in normal operation. E.g. if the tag is installed on a hand held tool the tag is not a fixed installation.**

Z=	Y=	X=	Tag Marking	Fixed Installation
R or F	E or M	1	I M1 Ex ia Ma II 1G Ex ia IIC Ga	N/A
R or F	E or M	2	I M1 Ex ia Ma II 1G Ex ia IIB Ga II 2G Ex ia IIC Gb	Warning 1
R or F	E or M	3	I M1 Ex ia Ma II 1G Ex ia IIB Ga	Warning 1
R or F	E or M	4	I M1 Ex ia Ma II 1G Ex ia IIA Ga II 2G Ex ia IIB Gb	Warning 1
R or F	E or M	5	I M1 Ex ia Ma II 2G Ex ia IIB Gb	Warning 1
R or F	E or M	6	I M1 Ex ia Ma II 1G Ex ia IIC Ga	Warning 2
F	L	1	II 2G Ex ia IIC Gb	N/A
F	L	2	II 2G Ex ia IIC Gb	N/A
F	L	3	II 2G Ex ia IIB Gb	N/A
F	L	4	II 2G Ex ia IIB Gb	N/A
F	L	5	II 2G Ex ia IIB Gb	N/A
R	L	1	I M1 Ex ia Ma II 1G Ex ia IIC Ga	N/A
R	L	2	I M1 Ex ia Ma II 1G Ex ia IIB Ga II 2G Ex ia IIC Gb	N/A
R	L	3	I M1 Ex ia Ma II 1G Ex ia IIB Ga	N/A
R	L	4	I M1 Ex ia Ma II 1G Ex ia IIA Ga II 2G Ex ia IIB Gb	N/A
R	L	5	I M1 Ex ia Ma II 2G Ex ia IIB Gb	N/A

Table 4 – Tag EPL, Category, Group and Ex markings (1)

Z=	Y=	X=	Tag Marking	Fixed Installation
C	E, M or P	1	I M1 Ex ia Ma II 1G Ex ia IIC Ga	N/A
C	E, M or P	2	I M1 Ex ia Ma II 1G Ex ia IIB Ga II 2G Ex ia IIC Gb	Warning 1
C	E, M or P	3	I M1 Ex ia Ma II 1G Ex ia IIB Ga	Warning 1
C	E, M or P	4	I M1 Ex ia Ma II 1G Ex ia IIA Ga II 2G Ex ia IIB Gb	Warning 1
C	E, M or P	5	I M1 Ex ia Ma II 2G Ex ia IIB Gb	Warning 1
C	E, M or P	6	I M1 Ex ia Ma II 1G Ex ia IIC Ga	Warning 2
R	P	1	I M1 Ex ia Ma II 1G Ex ia IIC Ga	N/A
R	P	2	I M1 Ex ia Ma II 1G Ex ia IIB Ga II 2G Ex ia IIC Gb	Warning 1
R	P	3	I M1 Ex ia Ma II 1G Ex ia IIB Ga	Warning 1
R	P	4	I M1 Ex ia Ma II 1G Ex ia IIA Ga II 2G Ex ia IIB Gb	Warning 1
R	P	5	I M1 Ex ia Ma II 2G Ex ia IIB Gb	Warning 1
R	P	6	I M1 Ex ia Ma II 1G Ex ia IIC Ga	Warning 2

Table 5 – Tag EPL, Category, Group and Ex markings (2)

Warning 1! **For (–E, encased), (–M, metal) and (-P, painted) tag variants ONLY, additional to the marked Ex code it is permissible for a tag variant to be given the following effective Ex code (note this code will not be marked on the tag) :**

II 1G Ex ia IIC Ga **FOR FIXED INSTALLATIONS ONLY.**

Under these conditions there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.

Warning 2! **Tags marked with X=6 are permitted ONLY in fixed installations only. Under these conditions there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned with a damp cloth.**

3 Structure and Function

3.1 Intended Purpose Usage

Important	**Before setting the unit to work, read the technical documentation carefully.**

Important	**The latest version of the technical documentation or the corresponding technical supplements is valid in each case.**

Omni-ID UHF tags are built using modern components and is extremely reliable in operation; however it must only be used for its intended purpose. Please note that the intended purpose also includes compliance with the instructions issued by the manufacturer for installation, setting up and service.

Any other use is regarded as conflicting with the intended purpose. The manufacturer is not liable for any subsequent damage resulting from such inadmissible use. The user bears the sole risk in such cases.

3.2 Transportation and Storage

All Omni-ID UHF tag devices must be so transported and stored so that they are not subjected to any excessive mechanical or environmental stresses.

3.3 Authorized Persons

Only persons trained for the purpose are authorized to handle the Omni-ID UHF tags; they must be familiar with the units and must be aware of the regulation and provisions required for explosion protection as well as the relevant accident prevention regulations.

3.4 Cleaning and Maintenance

The Omni-ID UHF tags and all its components require no maintenance. The tags are potential electrostatic charging hazards and as such should only be wiped with a damp cloth.

3.5 Safety Precautions

Important	**For the installation, maintenance and cleaning of the units, it is absolutely necessary to observe the applicable regulations and provisions concerned with explosion protection (EN 60079-0, EN 60079-14) as well as the Accident Prevention Regulations.**

3.6 Cleaning and Maintenance Intervals

The cleaning intervals depend on the environment where the system is installed.

3.7 Aggressive substances and environments

The Omni-ID UHF tags are not designed to come into contact with aggressive substances or environments, please be aware that additional protection may be required.

3.8 Exposure to external stresses

The Omni-ID UHF tags are not designed to be subjected to excessive stresses e.g. vibration, heat, impact. Additional protection is required to protect against these external stresses.

The Omni-ID UHF tags will require additional protection if it is used in a location where it may be subjected to damage.

4 ATEX Certificate

Certificate Number
Baseefa11ATEX0123X
Issue 2

Issued 11 February 2013
Page 1 of 4

1 **EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	EC - Type Examination Certificate Number:	**Baseefa11ATEX0123X – Issue 2**
4	Equipment or Protective System:	**Omni-ID RF Tags**
5	Manufacturer:	**Extronics Limited**
6	Address:	**Middlewich, Cheshire, CW10 0HU**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No's. **GB/BAS/ExTR12.0304/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009 EN 60079-11:2007

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ⓔx **(see schedule)**

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **3700** Project File No. **12/0572**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Baseefa
Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa11ATEX0123X – Issue 2**

15 **Description of Equipment or Protective System**

The Omni-ID UHF tags are a range of passive radio frequency identification (RFID) tags that consist of a small integrated circuit (IC) and an antenna mounted on a printed circuit board. An optional enclosure may be present.

An RF signal generated by a separate RFID reader/interrogator is intercepted by the Omni-ID UHF tag and used to power the IC.

The powered IC can then demodulate/modulate the received RF signal to allow the IC to be programmed by the reader, and to back scatter the intercepted RF signal to the reader. The reader interprets the back scattered signal to allow the tag to be identified.

The equipment is marked using the following product code:-

*******-Z-Y-X

where -Z-Y-X determines the applicable marking code as shown below:-

Z=	Y=	X=	Gas Group & EPL	Additional Gas Group & EPL for fixed use only
R or F	E or M	1	Ex ia Ma Ex ia IIC Ga	None
R or F	E or M	2	Ex ia Ma Ex ia IIB Ga Ex ia IIC Gb	Note 1
R or F	E or M	3	Ex ia Ma Ex ia IIB Ga	Note 1
R or F	E or M	4	Ex ia Ma Ex ia IIA Ga Ex ia IIB Gb	Note 1
R or F	E or M	5	Ex ia Ma Ex ia IIB Gb	Note 1
R or F	E or M	6	Ex ia Ma (note 2) Ex ia IIC Ga (note 2)	None
C	E, M or P	1	Ex ia Ma Ex ia IIC Ga	None
C	E, M or P	2	Ex ia Ma Ex ia IIB Ga Ex ia IIC Gb	Note 1
C	E, M or P	3	Ex ia Ma Ex ia IIB Ga	Note 1
C	E, M or P	4	Ex ia Ma Ex ia IIA Ga Ex ia IIB Gb	Note 1
C	E, M or P	5	Ex ia Ma Ex ia IIB Gb	Note 1
C	E, M or P	6	Ex ia Ma (note 2) Ex ia IIC Ga (note 2)	None
F	L	1 or 2	Ex ia IIC Gb	None
F	L	3, 4 or 5	Ex ia IIB Gb	None
R	L	1	Ex ia Ma Ex ia IIC Ga	None

Z=	Y=	X=	Gas Group & EPL	Additional Gas Group & EPL for fixed use only
R	L	2	Ex ia Ma Ex ia IIB Ga Ex ia IIC Gb	None
R	L	3	Ex ia Ma Ex ia IIB Ga	None
R	L	4	Ex ia Ma Ex ia IIA Ga Ex ia IIB Gb	None
R	L	5	Ex ia Ma Ex ia IIB Gb	None
R	P	1	Ex ia Ma Ex ia IIC Ga	None
R	P	2	Ex ia Ma Ex ia IIB Ga Ex ia IIC Gb	Note 1
R	P	3	Ex ia Ma Ex ia IIB Ga	Note 1
R	P	4	Ex ia Ma Ex ia IIA Ga Ex ia IIB Gb	Note 1
R	P	5	Ex ia Ma Ex ia IIB Gb	Note 1
R	P	6	Ex ia Ma (note 2) Ex ia IIC Ga (note 2)	None

Note 1 - In addition to the marked EPL and group, the following marking is not present on the equipment but is valid for fixed application only:-

⟨Ex⟩ II 1G Ex ia IIC Ga

Under these conditions there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned using a damp cloth.

Note 2 - These variants are suitable for fixed application only. There may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned using a damp cloth.

The applicable temperature class as determined by the maximum ambient temperature, the product code and the maximum power from the reader is shown in the Special Conditions for Safe Use.

16 Report Number

GB/BAS/ExTR12.0304/00

17 Specific Conditions of Use

17.1 For **-R** variants the maximum RF power output from the tag reader to its antenna must not exceed the following:-

T_{AMB} (°C)	Group IIC T6	Group IIC T5 & Group I	Group IIC T4
-40 to +40	0.25W	0.66W	1.5W
-40 to +50	0.18W	0.59W	1.5W
-40 to +60	0.12W	0.53W	1.5W
-40 to +70	0.06W	0.47W	1.5W
-40 to +80	N/A	0.40W	1.5W

17.2 For **-F** variants the maximum RF power output from the tag reader to its antenna must not exceed the following:-

T_{AMB} (°C)	Group IIC T6	Group IIC T5 & Group I	Group IIC T4
-40 to +40	0.13W	0.36W	0.79W
-40 to +50	0.10W	0.32W	0.75W
-40 to +60	0.06W	0.29W	0.72W
-40 to +70	0.03W	0.25W	0.68W
-40 to +80	N/A	0.22W	0.65W

17.3 For **-C** variants the maximum RF power output from the tag reader to its antenna must not exceed the following:-

T_{AMB} (°C)	Group IIC T6	Group IIC T5 & Group I	Group IIC T4
-40 to +40	0.19W	0.50W	1.10W
-40 to +50	0.14W	0.45W	1.05W
-40 to +60	0.09W	0.40W	1.00W
-40 to +70	0.04W	0.35W	0.95W
-40 to +80	N/A	0.31W	0.90W

17.4 Under the conditions listed in the certificate schedule where either note 1 or note 2 apply there may be a potential electrostatic charging hazard. When used in this manner the equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned using a damp cloth.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

New drawings submitted for this issue of certificate.

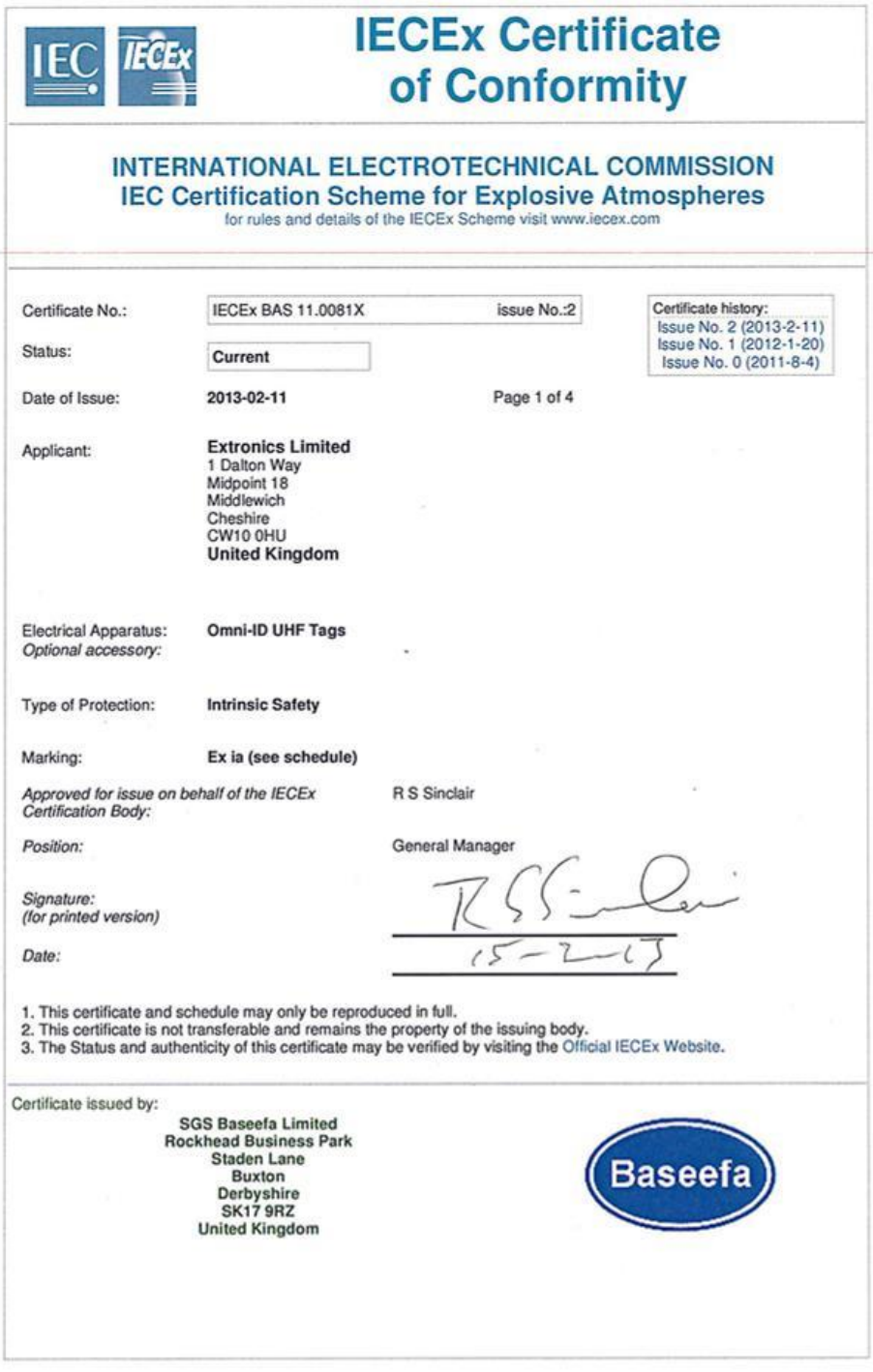
Number	Sheet	Issue	Date	Description
330266	1 to 5	03	31/01/2013	Tag Certification GA

This drawing is held with IECEx BAS11.0081X issue 1. There are no other drawings associated with this certificate.

20 Certificate History

Certificate No.	Date	Comments
Baseefa11ATEX0123X	2 August 2011	The release of the prime certificate. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR11.0066/00 & GB/BAS/ExTR11.0067/00.
Baseefa11ATEX0123X Issue 1	25 January 2012	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and permits mechanical changes leading to revised RF power level limits.
Baseefa11ATEX0123X Issue 2	6 February 2012	To permit the introduction of new variants, and a reduction of the marking present on very small tags which now require a supplementary label to be supplied for field installation near to the tags.
For drawings applicable to each issue, see original of that issue.		

5 IECEx Certificate



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx BAS 11.0081X issue No.:2

Certificate history:
Issue No. 2 (2013-2-11)
Issue No. 1 (2012-1-20)
Issue No. 0 (2011-8-4)

Status: Current

Date of Issue: 2013-02-11 Page 1 of 4

Applicant: **Extronics Limited**
1 Dalton Way
Midpoint 18
Middlewich
Cheshire
CW10 0HU
United Kingdom

Electrical Apparatus: **Omni-ID UHF Tags**
Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking: **Ex ia (see schedule)**

Approved for issue on behalf of the IECEx Certification Body: R S Sinclair

Position: General Manager

Signature: (for printed version)

Date: 15-2-13

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:
SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton
Derbyshire
SK17 9RZ
United Kingdom

Baseefa

IECEx Certificate of Conformity

Certificate No.: IECEx BAS 11.0081X

Date of Issue: **2013-02-11** Issue No.: **2**

Page 2 of 4

Manufacturer: **Extronics Limited**
1 Dalton Way
Midpoint 18
Middlewich
Cheshire
CW10 0HU
United Kingdom

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2007-10 Explosive atmospheres - Part 0:Equipment - General requirements
Edition: 5
IEC 60079-11 : 2006 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition: 5

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
GB/BAS/ExTR11.0066/00 GB/BAS/ExTR11.0067/00 GB/BAS/ExTR11.0315/00
GB/BAS/ExTR12.0304/00

Quality Assessment Report:

GB/SIR/QAR08.0025/03

IECEx Certificate of Conformity

Certificate No.: IECEx BAS 11.0081X

Date of Issue: **2013-02-11** Issue No.: **2**

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

The Omni-ID UHF tags are a range of passive radio frequency identification (RFID) tags that consist of a small integrated circuit (IC) and an antenna mounted on a printed circuit board. An optional enclosure may be present.
An RF signal generated by a separate RFID reader/interrogator is intercepted by the Omni-ID UHF tag and used to power the IC.
The powered IC can then demodulate/modulate the received RF signal to allow the IC to be programmed by the reader, and to back scatter the intercepted RF signal to the reader. The reader interprets the back scattered signal to allow the tag to be identified.

The marking code is defined in the certificate annex.

CONDITIONS OF CERTIFICATION: YES as shown below:

1. The maximum RF power from the reader to its aerial must not exceed the limits shown in the annex to this certificate.
2. The temperature class and permitted ambient temperature range are defined in the annex to this certificate.

IECEx Certificate of Conformity

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Variation 2.1

To permit the introduction of new variants, and a reduction of the marking present on very small tags which now require a supplementary label to be supplied for field installation near to the tags.

ExTR: **GB/BAS/ExTR12.0304/00** File Reference: **12/0572**

Annexe: IECEx BAS 11.0081X-Annex Iss 2.pdf

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SK17 9RZ
United Kingdom

ANNEX to IECEx BAS 11.0081X Issue No. 2 Date: 11 Feb 2013

The equipment is marked using the following product code:-

*******-Z-Y-X

where -Z-Y-X determines the applicable marking code as shown below:-

Z=	Y=	X=	Gas Group & EPL	Additional Gas Group & EPL for fixed use only
R or F	E or M	1	Ex ia Ma Ex ia IIC Ga	None
R or F	E or M	2	Ex ia Ma Ex ia IIB Ga Ex ia IIC Gb	Note 1
R or F	E or M	3	Ex ia Ma Ex ia IIB Ga	Note 1
R or F	E or M	4	Ex ia Ma Ex ia IIA Ga Ex ia IIB Gb	Note 1
R or F	E or M	5	Ex ia Ma Ex ia IIB Gb	Note 1
R or F	E or M	6	Ex ia Ma (note 2) Ex ia IIC Ga (note 2)	None
C	E, M or P	1	Ex ia Ma Ex ia IIC Ga	None
C	E, M or P	2	Ex ia Ma Ex ia IIB Ga Ex ia IIC Gb	Note 1
C	E, M or P	3	Ex ia Ma Ex ia IIB Ga	Note 1
C	E, M or P	4	Ex ia Ma Ex ia IIA Ga Ex ia IIB Gb	Note 1
C	E, M or P	5	Ex ia Ma Ex ia IIB Gb	Note 1
C	E, M or P	6	Ex ia Ma (note 2) Ex ia IIC Ga (note 2)	None
F	L	1 or 2	Ex ia IIC Gb	None
F	L	3, 4 or 5	Ex ia IIB Gb	None
R	L	1	Ex ia Ma Ex ia IIC Ga	None
R	L	2	Ex ia Ma Ex ia IIB Ga Ex ia IIC Gb	None
R	L	3	Ex ia Ma Ex ia IIB Ga	None
R	L	4	Ex ia Ma Ex ia IIA Ga Ex ia IIB Gb	None
R	L	5	Ex ia Ma Ex ia IIB Gb	None

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Z=	Y=	X=	Gas Group & EPL	Additional Gas Group & EPL for fixed use only
R	P	1	Ex ia Ma Ex ia IIC Ga	None
R	P	2	Ex ia Ma Ex ia IIB Ga Ex ia IIC Gb	Note 1
R	P	3	Ex ia Ma Ex ia IIB Ga	Note 1
R	P	4	Ex ia Ma Ex ia IIA Ga Ex ia IIB Gb	Note 1
R	P	5	Ex ia Ma Ex ia IIB Gb	Note 1
R	P	6	Ex ia Ma (note 2) Ex ia IIC Ga (note 2)	None

Note 1 In addition to the marked EPL and group, the following marking is not present on the equipment but is permitted for fixed application only:-

Ex ia IIC Ga

Under these conditions there may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned using a damp cloth.

Note 2 These variants are suitable for fixed application only. There may be a potential electrostatic charging hazard. The equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned using a damp cloth.

Special Conditions for Safe Use

For **-R** variants the maximum RF power output from the tag reader to its aerial must not exceed the following:-

T_{AMB} (°C)	Group IIC T6	Group IIC T5 & Group I	Group IIC T4
40	0.25W	0.66W	1.5W
50	0.18W	0.59W	1.5W
60	0.12W	0.53W	1.5W
70	0.06W	0.47W	1.5W
80	N/A	0.40W	1.5W

For **-F** variants the maximum RF power output from the tag reader to its aerial must not exceed the following:-

T_{AMB} (°C)	Group IIC T6	Group IIC T5 & Group I	Group IIC T4
40	0.13W	0.36W	0.79W
50	0.10W	0.32W	0.75W
60	0.06W	0.29W	0.72W
70	0.03W	0.25W	0.68W
80	N/A	0.22W	0.65W

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For **-C** variants the maximum RF power output from the tag reader to its aerial must not exceed the following:-

T_{AMB} (°C)	Group IIC T6	Group IIC T5 & Group I	Group IIC T4
40	0.19W	0.50W	1.10W
50	0.14W	0.45W	1.05W
60	0.09W	0.40W	1.00W
70	0.04W	0.35W	0.95W
80	N/A	0.31W	0.90W

Under the conditions listed above where either note 1 or note 2 apply there may be a potential electrostatic charging hazard. When used in this manner the equipment is not to be mounted in a high airflow dust laden atmosphere and should only be cleaned using a damp cloth.

6 EC Declaration of Conformity

Released Specific to production batch. Contact Extronics

7 Manual Revision

Revision	Description	Date	By
01	Initial Release For Certification	07/07/2011	AJR
02	Added EC DoC, ATEX and IECEx certificate	23/09/2011	AJR
03	Added revision 02 of ATEX/IECEx certificates, update maximum RF power levels	06/02/2012	AJR
04	Added revision 03 of ATEX/IECEx certificates, update maximum RF power levels for –C variant	19/02/2013	AJR
05	Updated ATEX/IECEx conditions of safe use	25/04/2014	AJR
06	Removed EC DoC	27/08/2014	AJR